

Application No. 09/786,213
Reply to Office Action of July 16, 2003

Attorney Docket No. 81833.0027

REMARKS/ARGUMENTS:

Claims 1, 2, and 7-9 are amended. Support for the amendment to claims 1, 2, and 7-9 can be found on p. 1, lines 9-16, p. 14, lines 4-15, and p. 18, lines 2-6 of the Applicant's specification. Claims 1-12 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The present invention is directed to a non-woven fabric comprising short fibers having a three-dimensional random structure. This fabric has good sound absorbing characteristics and preferred cushioning properties.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102:

Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Fujimoto (JP 09-078425). The Applicant respectfully traverses the rejection. Claim 1, as amended, is as follows:

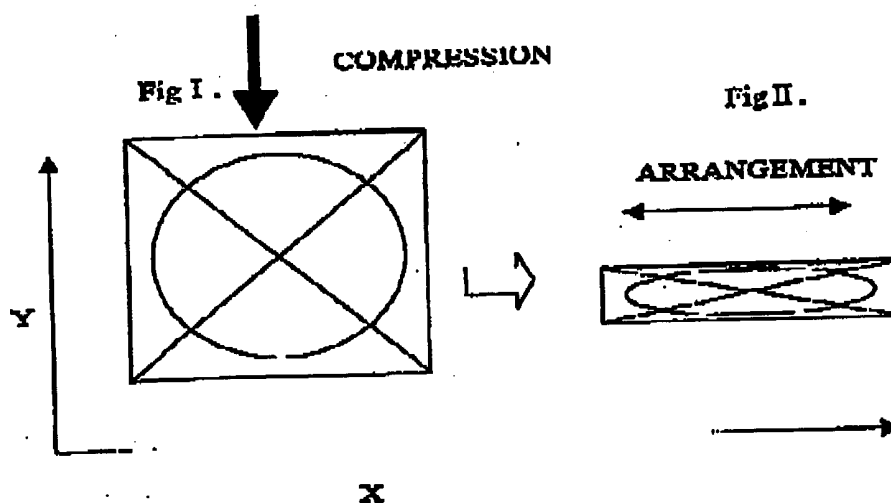
A non-woven fabric of a three dimensional structure comprising short fibers, which is bonded substantially at portions of contact between each of the fibers and the fibers are arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure.

Applicant respectfully submits that Fujimoto cannot anticipate claim 1, because Fujimoto fails to teach a non-woven fabric of a three dimensional structure whose short fibers are arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure. In Fujimoto, fiber A and other fiber B which constitutes a fiber plastic solid fully are mixed, opened and gotten as fiber mixture. And the mold is blown and filled up with fiber mixture with gases such as an air stream by the fan. Next, the fiber mixture with which it was filled up is compressed

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and is made into the suitable density according to the use of the fiber plastic solid (Fujimoto, paragraph 9; Figure 2). Consequently, the fiber plastic solid having a thickness (Figure I, below) is compressed in the mold and is pressed down and arranged to two-dimensional direction (Figure II, below).



According to the present invention, on the other hand, fiber (tufts) are fed and made uniform and then the web uniformly compressed in the direction of the width of the web by an air stream. As shown in Figure 3, the density and depth of the web constant produced by feed trunk (7) and delivery roller (9) results in a non-woven fabric of the three (random) dimensional structure. (Applicant's specification, at p. 58, lines 3-6; Figure 3). Three-dimensional randomness provides the beneficial property of allowing the desired sound absorbing characteristic irrespective of the incident direction. That is, it is considered that since the direction of the reaction of force by the sound propagation is not uniform as the entire fiber assembly, the sound absorbing characteristic is improved more than that in the case of the two-dimensional randomness. (Applicant's specification, at p. 21, lines 2-18).

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In light of the foregoing, Applicant respectfully submits that Fujimoto could not have anticipated or rendered obvious claim 1, because Fujimoto fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claim 2, as amended, is as follows:

A non-woven fabric of a three dimensional structure comprising at least two types of short fibers in which one of constituent fibers contains an ingredient having a melting point lower than that of other fibers, which is substantially bonded at portions of contact between each of the fibers and in which the fibers are arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure.

Claim 2, although not depending from claim 1, has the limitation "a non-woven fabric of a three dimensional structure whose short fibers are arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure" in common with claim 1. Therefore, Fujimoto could not have anticipated or rendered obvious claim 2 for at least the same reasons as claim 1. Claim 3 depends from claim 1 or 2 and cannot be anticipated or rendered obvious for at least the same reasons as claim 1 or 2. Withdrawal of these rejections is thus respectfully requested.

Claims 7-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Keck (U.S. Patent No. 5,874, 160). The Applicant respectfully traverses the rejection.

Claims 7 and 8 require the limitation -- a three dimensional structure of a non-woven fabric constituted with short fibers arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure.

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Applicant respectfully submits that Keck cannot anticipate claims 7 and 8, because Keck fails to teach a three dimensional structure of a non-woven fabric constituted with short fibers arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure. Similarly, Keck cannot anticipate claim 9, because Keck fails to teach a non-woven fabric constituted by bonding plural fiber lumps comprising short fibers arranged along random directions, which is defined as a Fillet radius ratio within a range from 0.95 to 1.05, in at least two surfaces of the three dimensional structure. Keck is directed to a cleaning element formed from spunbound fiber webs. (Keck, Abstract). These spunbound fiber webs comprise continuous fibers. (Keck, column 3, lines 35-47; column 7, lines 18-19). Therefore, spunbound fiber webs comprise filaments. In contrast, the fibers of the present invention are short fibers.

The fiber lumps of the present invention are obtained by pulverizing the non-woven fabric comprising short fibers. The fabric is pulverized by using a square pelletizer or rotary type universal pulverizer to obtain the fiber lumps of a desired size. Then, the non-woven fabric structure is formed by making the fiber lumps into a desired shape and applying a secondary heat fusing treatment, thereby heat fusing the fiber elements to each other. (Applicant's specification, at p. 33, line 4-p. 34, line 4). The resulting structure provides sufficient rigidity as the support, fixed feeling, stable feeling and cushioning. In contrast, the spherical non-woven fabric structure of Keck is one of folding up like an accordion and holding up at the central part (Keck, Figure 8).

In light of the foregoing, Applicant respectfully submits that Keck could not have anticipated or rendered obvious claims 7-9, because Keck fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

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In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6810 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: October 10, 2003

By: _____

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